

```
ring/chain nodes:
24

chain bonds:
11-18    15-24

ring bonds:
1-2    1-6    2-3    3-4    4-5    4-7    5-6    5-10    7-8    7-11    8-9    8-14    9-10    11-12    12-13    13-14    13-15    14-17    15-16    16-17    18-19    18-23    19-20    20-21    21-22    22-23    exact/norm bonds:
1-2    1-6    2-3    3-4    4-5    4-7    5-6    5-10    7-8    7-11    8-9    8-14    9-10    11-12    11-18    12-13    13-14    13-15    14-17    15-16    15-24    16-17    18-19    18-23    19-20    20-21    21-22    22-23
```

Match level:
1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom 11:Atom 12:Atom 13:Atom 14:Atom 15:Atom 16:Atom 17:Atom 18:Atom 19:Atom 20:Atom 21:Atom 22:Atom 23:Atom 24:CLASS

=> d his

L1

(FILE 'HOME' ENTERED AT 17:19:11 ON 28 JUL 2004)

FILE 'REGISTRY' ENTERED AT 17:19:18 ON 28 JUL 2004

STRUCTURE UPLOADED

L2 QUE L1

L3 0 S L2

L4 83 S L2 SSS FUL

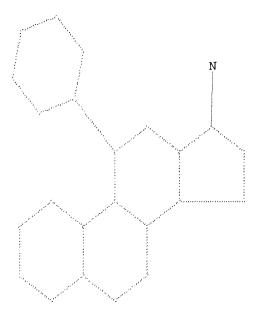
FILE 'CAPLUS' ENTERED AT 17:20:23 ON 28 JUL 2004

L5 3 S L4

=> d 12

L2 HAS NO ANSWERS

L1 STR



Structure attributes must be viewed using STN Express query preparation. L2 QUE ABB=ON PLU=ON L1

=> d ibib abs hitstr 1-3

```
10/61,1,785
    ANSWER 1 OF 3 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER:
                         2002:560363 CAPLUS
DOCUMENT NUMBER:
                         138:147491
TITLE:
                         Identification and characterization of novel estrogen
                         \texttt{receptor-}\beta \texttt{-sparing antiprogestins}
AUTHOR(S):
                         Sathya, Ganesan; Jansen, Michelle S.; Nagel, Susan C.;
                         Cook, C. Edgar; McDonnell, Donald P.
CORPORATE SOURCE:
                         Department of Pharmacology and Cancer Biology, Duke
                         University Medical Center, Durham, NC, 27710, USA
SOURCE:
                         Endocrinology (2002), 143(8), 3071-3082
                         CODEN: ENDOAO; ISSN: 0013-7227
PUBLISHER:
                         Endocrine Society
DOCUMENT TYPE:
                         Journal
LANGUAGE:
                         English
    The steroid hormones estrogen and progesterone together regulate the
    development and maintenance of the female reproductive system.
    actions of these two hormones are mediated by their resp. nuclear
    receptors located within overlapping cell populations in target organs.
    The mol. mechanism of action of these two hormones has been defined to a
    large extent using estrogen receptor (ER) and progesterone receptor (PR)
    antagonists. In the case of ER, the available antagonists are highly
    receptor selective. With respect to PR, however, the available
    antiprogestins also interact with the receptors for glucocorticoids,
    mineralocorticoids, and androgens. Whereas these cross-reactivities can
    usually be managed in studies of female reproductive function, it is the
    recent demonstration that RU486 is an effective antagonist of the
    \beta-isoform of ER that suggested the need for more selective
    antiprogestins. In this study, we used cell-based transcriptional assays
    combined with screens using coactivator peptide analogs to identify two
    novel classes of antiprogestins that distinguish themselves from the
    antiprogestin RU486 in the manner they interact with PR. One class
    exhibits the characteristics of a pure antiprogestin in that its members
    bind to the receptor and induce a conformational change that prevents the
    presentation of two potential coactivator binding surfaces on the protein.
    The second class of compds. distinguish themselves from RU486 in that they
    are ER\beta sparing. When tested in vivo the ER-sparing antiprogestins
    were as effective as RU486 in suppressing superovulation. It is
    anticipated that the availability of these new antiprogestins will advance
    the studies of PR pharmacol. in a manner similar to how the availability
    of selective ER modulators has helped the study of ER action.
    244304-81-2, RTI 6413-015 244304-82-3, RTI 6413-045
    244304-85-6, RTI 6413-029E 244304-86-7, RTI 6413-045ox
    244304-89-0, RTI 6413-013 244304-91-4, RTI 6413-028
    244305-03-1, RTI 6413-044 244305-17-7, RTI 6413-029Z
    496840-89-2, RTI 6413-030 496840-92-7, RTI 6413-043
    496840-93-8, RTI 6413-043ox
    RL: PAC (Pharmacological activity); THU (Therapeutic use); BIOL
    (Biological study); USES (Uses)
        (identification and characterization of novel estrogen
        receptor-\beta-sparing antiprogestins)
```

Estra-4,9-dien-3-one, 11-[4-(dimethylamino)phenyl]-17-(3-hydroxypropyl)-17-

Absolute stereochemistry.

244304-81-2 CAPLUS

nitro-, $(11\beta, 17\beta)$ - (9CI) (CA INDEX NAME)

RN

CN

RN 244304-82-3 CAPLUS

CN Estra-4,9-dien-3-one, 17-(3-hydroxypropyl)-11-[4-(methylthio)phenyl]-17-nitro-, (11 β ,17 β)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

RN 244304-85-6 CAPLUS

CN Estra-4,9-dien-3-one, $11-(4-acetylphenyl)-17-[(1E)-3-hydroxy-1-propenyl]-17-nitro-, (11<math>\beta$,17 β)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.
Double bond geometry as shown.

RN 244304-86-7 CAPLUS

CN Estra-4,9-dien-3-one, 17-(3-hydroxypropyl)-11-[4-(methylsulfinyl)phenyl]-

Page 3

10/611,785

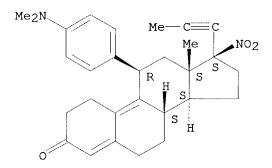
17-nitro-,
$$(11\beta, 17\beta)$$
- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

RN 244304-89-0 CAPLUS

CN Estra-4,9-dien-3-one, $11-[4-(dimethylamino)phenyl]-17-nitro-17-(1-propynyl)-, (11<math>\beta$,17 β)- (9CI) (CA INDEX NAME)

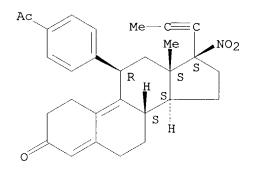
Absolute stereochemistry.



RN 244304-91-4 CAPLUS

CN Estra-4,9-dien-3-one, 11-(4-acetylphenyl)-17-nitro-17-(1-propynyl)-, $(11\beta,17\beta)-(9CI)$ (CA INDEX NAME)

Absolute stereochemistry.



RN 244305-03-1 CAPLUS

Page 4

CN Estra-4,9-dien-3-one, 17-(3-hydroxy-1-propenyl)-11-[4-(methylthio)phenyl]-17-nitro-, $(11\beta,17\beta)$ - (9CI) (CA INDEX NAME)

Absolute stereochemistry.
Double bond geometry unknown.

RN 244305-17-7 CAPLUS

CN Estra-4,9-dien-3-one, $11-(4-acetylphenyl)-17-[(1Z)-3-hydroxy-1-propenyl]-17-nitro-, (11<math>\beta$,17 β)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.
Double bond geometry as shown.

RN 496840-89-2 CAPLUS

CN 19-Norpregna-4,9-dien-3-one, 11-(4-acetylphenyl)-21-hydroxy-17-nitro-, $(11\beta,17\alpha)$ - (9CI) (CA INDEX NAME)

10/611,785

RN 496840-92-7 CAPLUS

CN Estra-4,9-dien-3-one, 11-[4-(methylthio)phenyl]-17-nitro-17-(1-propynyl)-, $(11\beta,17\beta)-(9CI)$ (CA INDEX NAME)

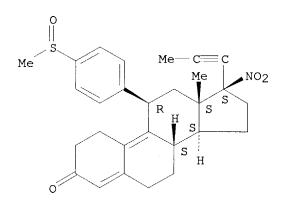
Absolute stereochemistry.

RN 496840-93-8 CAPLUS

CN Estra-4,9-dien-3-one, $11-[4-(methylsulfinyl)phenyl]-17-nitro-17-(1-propynyl)-, (11<math>\beta$,17 β)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

Currently available stereo shown.



54

REFERENCE COUNT:

THERE ARE 54 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

X 10/611,785

ANSWER 2 OF 3 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1999:784119 CAPLUS

DOCUMENT NUMBER:

132:23141

TITLE:

Preparation of 17β -amino- and

 17β -hydroxylamino- 11β -arylsteroids with

potent antiprogestational activity

INVENTOR(S):

Cook, C. Edgar; Kepler, John A.; Bartley, Gary S.;

Shetty, Rupa S.

CODEN: PIXXD2

PATENT ASSIGNEE(S):

Research Triangle Institute, USA

SOURCE:

PCT Int. Appl., 75 pp.

DOCUMENT TYPE:

Patent

LANGUAGE:

English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PAT	KIND DATE				APPLICATION NO. DATE												
WO	9962928			A1 19991209				WO 1999-US10480 19990528									
	W:	AL,	AM,	AT,	ΑU,	ΑZ,	BA,	BB,	BG,	BR	BY,	CA,	CH,	CN,	CU,	CZ,	DE,
		DK,	EE,	ES,	FI,	GB,	GE,	GH,	GM,	, HR	. HU,	ID,	ΙL,	IS,	JP,	ΚE,	KG,
		KΡ,	KR,	ΚZ,	LC,	LK,	LR,	LS,	LT,	LU,	LV,	MD,	MG,	MK,	MN,	MW,	MX,
		NO,	NΖ,	PL,	PT,	RO,	RU,	SD,	SE,	, SG,	, SI,	SK,	SL,	ТJ,	TM,	TR,	TT,
		UA,	.UG,	UZ,	VN,	ΥU,	ZW,	AM,	ΑZ,	BY,	KG,	ΚZ,	MD,	RU,	ТJ,	TM	
	RW:	GH,	GM,	ΚE,	LS,	MW,	SD,	SL,	SZ	, UG,	ZW,	AT,	BE,	CH,	CY,	DE,	DK,
		ES,	FI,	FR,	GB,	GR,	ΙE,	IT,	LU,	MC,	NL,	PT,	SE,	BF,	ВJ,	CF,	CG,
				,		•					TD,						
	6262042																
CA	2333669			AA 19991209		1209	CA 1999-2333669						19990528				
				A1 1999122				1	AU 19	999-4		1999	0528				
				B2 20021017													
BR	9910794								I	3R 19	999-1	0794		1999	0528		
EΡ	1082337			A	1	2001	0314		I	EP 19	999-9	2420	7	1999	0528		
	R:							FR,	GB,	GR,	IT,	LI,	LU,	NL,	SE,	MC,	PT,
						FI,											
				T2 20020924													
				A 20031128					1Z 19	999-5	5	19990528					
	NO 2000005989			A 200										2000			
	US 2002065257								Ţ	JS 20	001-8	9539	5	2001	0702		
	6620801			B2 20													
US	S 2004023936			A1 20040205			US 2003-611785										
CORITY	ORITY APPLN. INFO.													1998			
														1999			
									US 2	2001-	-8953	95	A1	2001	0702		

MARPAT 132:23141

GΙ

OTHER SOURCE(S):

Page 7

R12

R8

$$\begin{array}{c} (0) \text{ n} \\ R9 \\ N \\ R7 \\ R6 \\ \end{array}$$

R12

R12

R12

R4

R6

R12

R6

Me

III

Η

Η

AΒ 11β -Phenylestradienes I [R1 = R2R3N(O)m, nitrogen containing heterocyclyl; R2, R3 = H, alkyl, cycloalkyl alkenyl; R6 = H, alkyl, halogen; R7 = H, alkyl, alkenyl, alkynyl, cycloalkyl, aryl, heteroaryl, etc.; R8, R9 = H, OH, alkyl, alkenyl, alkynyl, acyl, alkyloxy; R13 = H, halogen; R1R12 = fused nitrogen containing heterocyclic ring; X = H2, OH, silyloxy, acyloxy, etc.; m, n = 0, 1] and II [R1 = R2R3N(O)m, nitrogen containing heterocyclyl; R2, R3 = H, alkyl, cycloalkyl alkenyl; R6 = H, alkyl, halogen; R7 = H, alkyl, alkenyl, alkynyl, cycloalkyl, aryl, heteroaryl, etc.; R9 = H, OH, alkyl, alkenyl, alkynyl, acyl, alkyloxy; R13 = H, halogen; R1R12 = fused nitrogen containing heterocyclic ring; X = H2, OH, silyloxy, acyloxy, etc.; Y = CR13R14; Z = CH2, C:CH2; R13, R14 = H, alkyl, alkenyl, alkynyl, cycloalkyl, aryl, heteroaryl, etc.; R13R14 = O; m, n = 0, 1] were prepared and exhibited potent antiprogestational activity. Thus, oxime III (R = 4-dimethylaminophenyl) was prepared starting from sterol IV (R = 4-dimethylaminophenyl) in two steps. The prepared compds. were tested for progesterone receptor binding activity, progestational activity, and antiprogestational activity.

ОН

Me

ΙI

Me

IV

NO₂

Me

Η

Η

IT 251987-44-7P 251987-54-9P

RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); RCT (Reactant); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)

(preparation of 17 β -amino- and 17 β -hydroxylamino-11 β -phenylestradienes with potent antiprogestational activity) 251987-44-7 CAPLUS

RN 251987-44-7 CAPLUS CN Estra-4,9-dien-3-one, 17-amino-11-[4-(dimethylamino)phenyl]-17-(1-propynyl)-, $(11\beta,17\beta)$ - (9CI) (CA INDEX NAME)

RN 251987-54-9 CAPLUS
CN Estra-4,9-dien-3-one, 17-amino-17-(3-hydroxypropyl)-11-[4-(1-piperidinyl)phenyl]-, (11β,17β)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

251987-35-6P 251987-40-3P 251987-48-1P

```
251987-52-7P 251987-58-3P 251987-62-9P
    251987-65-2P 251988-38-2P 251988-39-3P
    251988-40-6P 251988-41-7P 251988-42-8P
    251988-43-9P 251988-45-1P 251988-46-2P
    251988-47-3P 251988-48-4P 251988-49-5P
    251988-50-8P 251988-52-0P 251988-53-1P
    251988-54-2P 251988-55-3P
    RL: BAC (Biological activity or effector, except adverse); BSU (Biological
    study, unclassified); SPN (Synthetic preparation); THU (Therapeutic use);
    BIOL (Biological study); PREP (Preparation); USES (Uses)
        (preparation of 17\beta-amino- and 17\beta-hydroxylamino-11\beta-
        phenylestradienes with potent antiprogestational activity)
RN
     251987-35-6 CAPLUS
    Estra-4,9-dien-3-one, 11-[4-(dimethylamino)phenyl]-17-(hydroxyamino)-17-(1-
CN
    propynyl) -, (11\beta, 17\beta) - (9CI) (CA INDEX NAME)
```

Absolute stereochemistry.

IT

RN 251987-40-3 CAPLUS

CN Estra-4,9-dien-3-one, $11-[4-(dimethylamino)phenyl]-17-(hydroxymethylamino)-17-(1-propynyl)-, (11<math>\beta$,17 β)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

RN 251987-48-1 CAPLUS

CN Acetamide, N-[$(11\beta,17\beta)$ -11-[4-(dimethylamino)phenyl]-3-oxo-17-(1-propynyl)estra-4,9-dien-17-yl]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

RN 251987-52-7 CAPLUS

CN Estra-4,9-dien-3-one, 17-(dimethylamino)-11- $[4-(dimethylamino)phenyl]-17-(1-propynyl)-, (11<math>\beta$,17 β)- (9CI) (CA INDEX NAME)

RN 251987-58-3 CAPLUS

CN Estra-4,9-dien-3-one, 17-(hydroxyamino)-17-(3-hydroxypropyl)-11-[4-(1-piperidinyl)phenyl]-, (11 β ,17 β)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

RN 251987-62-9 CAPLUS

CN Formamide, $N-[(11\beta,17\beta)-17-[3-(formyloxy)propyl]-3-oxo-11-[4-(1-piperidinyl)phenyl]estra-4,9-dien-17-yl]-(9CI) (CA INDEX NAME)$

Absolute stereochemistry.

RN 251987-65-2 CAPLUS

CN Formamide, N-[$(11\beta,17\beta)$ -17-(3-hydroxypropyl)-3-oxo-11-[4-(1-piperidinyl)phenyl]estra-4,9-dien-17-yl]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

RN 251988-38-2 CAPLUS

CN Estra-4,9-dien-3-one, 17-(hydroxyamino)-11-[4-(1-piperidinyl)phenyl]-17-(1-propynyl)-, $(11\beta,17\beta)$ - (9CI) (CA INDEX NAME)

Absolute stereochemistry.

RN 251988-39-3 CAPLUS

CN Estra-4,9-dien-3-one, 17-(hydroxymethylamino)-11-[4-(1-piperidinyl)phenyl]- 17-(1-propynyl)-, (11 β ,17 β)- (9CI) (CA INDEX NAME)

RN 251988-40-6 CAPLUS

CN Estra-4,9-dien-3-one, 17-amino-11-[4-(1-piperidinyl)phenyl]-17-(1-propynyl)-, (11 β ,17 β)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

RN 251988-41-7 CAPLUS

CN Acetamide, N-[(11 β ,17 β)-3-oxo-11-[4-(1-piperidinyl)phenyl]-17-(1-propynyl)estra-4,9-dien-17-yl]- (9CI) (CA INDEX NAME)

RN 251988-42-8 CAPLUS

CN Formamide, N-[$(11\beta,17\beta)$ -11-[4-(dimethylamino)phenyl]-3-oxo-17-(1-propynyl)estra-4,9-dien-17-yl]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

RN 251988-43-9 CAPLUS

CN Formamide, $N-[(11\beta,17\beta)-11-[4-(dimethylamino)phenyl]-3-oxo-17-(1-propynyl)estra-4,9-dien-17-yl]-N-hydroxy- (9CI) (CA INDEX NAME)$

Absolute stereochemistry.

RN 251988-45-1 CAPLUS

CN Formamide, N-[$(11\beta,17\beta)$ -3-oxo-11-[4-(1-piperidinyl)phenyl]-17-(1-propynyl)estra-4,9-dien-17-yl]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

RN 251988-46-2 CAPLUS

CN Formamide, N-hydroxy-N-[(11 β ,17 β)-3-oxo-11-[4-(1-piperidinyl)phenyl]-17-(1-propynyl)estra-4,9-dien-17-yl]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

RN 251988-47-3 CAPLUS

CN Estra-4,9-dien-3-one, $11-[4-(dimethylamino)phenyl]-17-(hydroxyamino)-17-(3-hydroxypropyl)-, (11<math>\beta$,17 β)- (9CI) (CA INDEX NAME)

RN 251988-48-4 CAPLUS

CN Estra-4,9-dien-3-one, $11-[4-(dimethylamino)phenyl]-17-(hydroxymethylamino)-17-(3-hydroxypropyl)-, (11<math>\beta$,17 β)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

RN 251988-49-5 CAPLUS

CN Estra-4,9-dien-3-one, 17-(hydroxymethylamino)-17-(3-hydroxypropyl)-11-[4-(1-piperidinyl)phenyl]-, (11 β ,17 β)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

RN 251988-50-8 CAPLUS

CN Estra-4, 9-dien-3-one, 17-amino-11-[4-(dimethylamino)phenyl]-17-(3-hydroxypropyl)-, $(11\beta, 17\beta)$ - (9CI) (CA INDEX NAME)

Absolute stereochemistry.

RN 251988-52-0 CAPLUS

CN Acetamide, $N-[(11\beta,17\beta)-11-[4-(dimethylamino)phenyl]-17-(3-hydroxypropyl)-3-oxoestra-4,9-dien-17-yl]-(9CI) (CA INDEX NAME)$

Absolute stereochemistry.

RN 251988-53-1 CAPLUS

CN Acetamide, N-[$(11\beta,17\beta)$ -17-(3-hydroxypropyl)-3-oxo-11-[4-(1-piperidinyl)phenyl]estra-4,9-dien-17-yl]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

RN 251988-54-2 CAPLUS

CN Formamide, $N-[(11\beta,17\beta)-11-[4-(dimethylamino)phenyl]-17-(3-hydroxypropyl)-3-oxoestra-4,9-dien-17-yl]-(9CI) (CA INDEX NAME)$

Absolute stereochemistry.

RN 251988-55-3 CAPLUS

CN Formamide, N-[$(11\beta,17\beta)$ -11-[4-(dimethylamino)phenyl]-17-[3-(formyloxy)propyl]-3-oxoestra-4,9-dien-17-yl]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

IT 244305-29-1 251988-37-1

RL: RCT (Reactant); RACT (Reactant or reagent) (preparation of 17β -amino- and 17β -hydroxylamino- 11β -phenylestradienes with potent antiprogestational activity)

RN 244305-29-1 CAPLUS

CN Estr-9-en-3-one, 11-[4-(dimethylamino)phenyl]-5-hydroxy-17-nitro-17-(1-propynyl)-, cyclic 1,2-ethanediyl acetal, $(5\alpha,11\beta,17\beta)$ - (9CI) (CA INDEX NAME)

RN 251988-37-1 CAPLUS

CN 19-Norpregn-9-ene-21-carboxylic acid, 3,3-[1,2-ethanediylbis(oxy)]-5-hydroxy-17-nitro-11-[4-(1-piperidinyl)phenyl]-, ethyl ester, $(5\alpha,11\beta,17\alpha)$ - (9CI) (CA INDEX NAME)

Absolute stereochemistry.

```
IT 251987-79-8P 251987-83-4P 251987-87-8P 251988-11-1P 251988-14-4P 251988-17-7P 251988-20-2P 251988-22-4P 251988-24-6P RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent) (preparation of 17\beta-amino- and 17\beta-hydroxylamino-11\beta- phenylestradienes with potent antiprogestational activity) RN 251987-79-8 CAPLUS CN Estr-9-en-3-one, 11-[4-(dimethylamino)phenyl]-5-hydroxy-17-(hydroxyamino)-17-(1-propynyl)-, cyclic 1,2-ethanediyl acetal, (5\alpha,11\beta,17\beta)- (9CI) (CA INDEX NAME)
```

RN 251987-83-4 CAPLUS

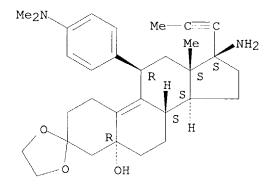
CN Estr-9-en-3-one, $11-[4-(dimethylamino)phenyl]-5-hydroxy-17-(hydroxymethylamino)-17-(1-propynyl)-, cyclic 1,2-ethanediyl acetal, <math>(5\alpha,11\beta,17\beta)-(9CI)$ (CA INDEX NAME)

Absolute stereochemistry.

RN 251987-87-8 CAPLUS

CN Estr-9-en-3-one, 17-amino-11-[4-(dimethylamino)phenyl]-5-hydroxy-17-(1-propynyl)-, cyclic 1,2-ethanediyl acetal, $(5\alpha,11\beta,17\beta)$ - (9CI) (CA INDEX NAME)

Absolute stereochemistry.



RN 251988-11-1 CAPLUS

CN Estr-9-en-3-one, 17-bromo-5-hydroxy-17-nitro-11-[4-(1-piperidinyl)phenyl]-, cyclic 1,2-ethanediyl acetal, $(5\alpha,11\beta)$ - (9CI) (CA INDEX NAME)

Absolute stereochemistry.

RN 251988-14-4 CAPLUS

CN Estr-9-en-3-one, 17-bromo-5-hydroxy-17-nitro-11-[4-(1-piperidinyl)phenyl]-, cyclic 1,2-ethanediyl acetal, $(5\alpha,11\beta,17\alpha)$ - (9CI) (CA INDEX NAME)

Absolute stereochemistry.

RN 251988-17-7 CAPLUS

CN 19-Norpregn-9-ene-21-carboxylic acid, 3,3-[1,2-ethanediylbis(oxy)]-5-hydroxy-17-nitro-11-[4-(1-piperidinyl)phenyl]-, methyl ester, $(5\alpha,11\beta,17\alpha)$ - (9CI) (CA INDEX NAME)

RN 251988-20-2 CAPLUS

CN Estr-9-en-3-one, 5-hydroxy-17-(3-hydroxypropyl)-17-nitro-11-[4-(1-piperidinyl)phenyl]-, cyclic 1,2-ethanediyl acetal, $(5\alpha,11\beta,17\beta)$ - (9CI) (CA INDEX NAME)

Absolute stereochemistry.

RN 251988-22-4 CAPLUS

CN Estr-9-en-3-one, 17-amino-5-hydroxy-17-(3-hydroxypropyl)-11-[4-(1-piperidinyl)phenyl]-, cyclic 1,2-ethanediyl acetal, $(5\alpha,11\beta,17\beta)$ - (9CI) (CA INDEX NAME)

RN 251988-24-6 CAPLUS

CN Estr-9-en-3-one, 5-hydroxy-17-(hydroxyamino)-17-(3-hydroxypropyl)-11-[4-(1-piperidinyl)phenyl]-, cyclic 1,2-ethanediyl acetal, $(5\alpha,11\beta,17\beta)$ - (9CI) (CA INDEX NAME)

Absolute stereochemistry.

1

REFERENCE COUNT:

THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

```
10/611,785

ANSWER 3 OF 3 CAPLUS COPYRIGHT 2004 ACS on STN ACCESSION NUMBER: 1999:633297 CAPLUS DOCUMENT NUMBER: 131:243468 TITLE: Preparation of 17\beta-nitro-11\beta-arylsteroids and their derivatives having agonist or antagonist
```

hormonal properties
Cook, C. Edgar; Kepler, John A.; Shetty, Rupa S.;

Bartley, Gary S.; Lee, David Yue-Wei

PATENT ASSIGNEE(S): Research Triangle Institute, USA

SOURCE: U.S., 24 pp. CODEN: USXXAM

DOCUMENT TYPE: Patent LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

INVENTOR(S):

PA	TENT	NO.		KI	ND	DATE			I	APPLI	CATI	ON NO	٥.	DATE				
									US 1998-86674									
US	US 6015805			А		20000118			τ	JS 19	99-3	1794.	5	19990525				
									CA 1999-2333668									
WO				A1		19991209			WO 1999-US10481 1									
	W:	AL,	AM,	AT,	ΑU,	ΑZ,	BA,	BB,	BG,	BR,	BY,	CA,	CH,	CN,	CU,	CZ,	DE,	
		DK,	EE,	ES,	FΙ,	GB,	GΕ,	GH,	GM,	HR,	HU,	ID,	IL,	IS,	JP,	ΚE,	KG,	
		ΚP,	KR,	ΚZ,	LC,	LK,	LR,	LS,	LT,	LU,	LV,	MD,	MG,	MK,	MN,	MW,	MX,	
		NO,	NZ,	PL,	PT,	RO,	RU,	SD,	SE,	SG,	SI,	SK,	SL,	ТJ,	TM,	TR,	TT,	
		UA,	UG,	UZ,	VN,	YU,	ZW,	AM,	AZ,	BY,	KG,	KZ,	MD,	RU,	ТJ,	TM		
	RW:	GH,	GM,	ΚE,	LS,	MW,	SD,	SL,	SZ,	UG,	ZW,	AT,	BE,	CH,	CY,	DE,	DK,	
		ES,	FI,	FR,	GB,	GR,	ΙE,	IT,	LU,	MC,	NL,	PT,	SE,	BF,	ВJ,	CF,	CG,	
		CI,	CM,	GΑ,	GN,	GW,	ML,	MR,	NE,	SN,	TD,	TG						
AU	AU 9940762			Α	.1 19991220				AU 1999-40762						19990528			
AU	AU 753355			B	2	20021017												
EP	EP 1082338			A	1	2001		EP 1999-924208						19990528				
	R:	AT,	BE,	CH,	DE,	DK,	ES,	FR,	GB,	GR,	IT,	LI,	LU,	NL,	SE,	MC,	PT,	
						FΙ,												
JP	JP 2002517405				2	2002		JP 2000-552139					19990528					
US	6093	707		Α		2000	0725		τ	JS 19	99-4	3447	3	1999	1105			
PRIORIT	RIORITY APPLN. INFO.:								US 1	L998-	8667	4	A3	1998	0529			
									US 1	L999-	3179	45	А3	1999	0525			
									WO 1	L999-	US10	481	W	1999	0528			
OTHER SOURCE(S). MARPAT 131.243468																		

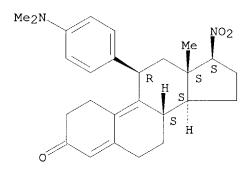
OTHER SOURCE(S): MARPAT 131:243468

GΙ

$$R^2$$
 R^2
 R^3
 R^3
 R^3
 R^3
 R^3
 R^4
 R^3
 R^3
 R^4
 R^3
 R^3
 R^4
 R^3
 R^4
 R^3
 R^4
 R^3
 R^4
 R^3
 R^4
 R^4

AΒ 17β -Nitro- 11β -arylsteroids of formula I [R1 = (substituted) amino, halo, OH, alkoxy, alkylthio, acyl, etc.; R2 = H, halo; R3 = H, alkyl, alkenyl, alkynyl, aryl, etc.; R4 = H, alkyl, halo; X = O, (substituted) NOH] are prepared The compds. exhibit potent antiprogestational activity and are useful in the treatment of fibroids, endometriosis, cervical ripening prior to delivery, hormone replacement therapy and in the control of fertility. Thus, 3,3-(1,2-ethanedioxy)estra-5(10), 9(11) -dien-17-one was transformed into II in several steps. The affinity of II for human progesterone hormone receptor was IC50 of 0.8 nM. 244304-80-1P 244304-81-2P 244304-82-3P 244304-83-4P 244304-84-5P 244304-85-6P 244304-86-7P 244304-89-0P 244304-90-3P 244304-91-4P 244305-03-1P 244305-17-7P RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses) (preparation of 17β -nitro- 11β -arylsteroids and derivs. with progestational or antiprogestational activity) RN 244304-80-1 CAPLUS CN Estra-4,9-dien-3-one, 11-[4-(dimethylamino)phenyl]-17-nitro-, $(11\beta, 17\beta)$ - (9CI) (CA INDEX NAME)

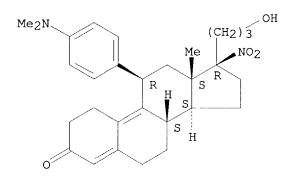
Absolute stereochemistry.



RN 244304-81-2 CAPLUS

CN Estra-4,9-dien-3-one, $11-[4-(dimethylamino)phenyl]-17-(3-hydroxypropyl)-17-nitro-, (11<math>\beta$,17 β)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



RN 244304-82-3 CAPLUS

CN Estra-4,9-dien-3-one, 17-(3-hydroxypropyl)-11-[4-(methylthio)phenyl]-17nitro-, $(11\beta, 17\beta)$ - (9CI) (CA INDEX NAME)

Absolute stereochemistry.

RN 244304-83-4 CAPLUS

 $\texttt{Estra-4,9-dien-3-one,} \quad 11-\texttt{[4-(dimethylamino)phenyl]-17-[(1E)-3-hydroxy-1-4]} \\ + (1-3-1)(1-3-1)(1-3-1)(1-3-1)(1-3-1) \\ + (1-3-1)(1-3-1)(1-3-1)(1-3-1)(1-3-1) \\ + (1-3-1)(1-3-1)(1-3-1)(1-3-1)(1-3-1) \\ + (1-3-1)(1-3-1)(1-3-1)(1-3-1)(1-3-1) \\ + (1-3-1)(1-3-1)(1-3-1)(1-3-1) \\ + (1-3-1)(1-3-1)(1-3-1)(1-3-1) \\ + (1-3-1)(1-3-1)(1-3-1)(1-3-1) \\ + (1-3-1)(1-3-1)(1-3-1)(1-3-1) \\ + (1-3-1)(1-3-1)(1-3-1)(1-3-1) \\ + (1-3-1)(1-3-1)(1-3-1)(1-3-1) \\ + (1-3-1)(1-3-$ CN propenyl]-17-nitro-, $(11\beta,17\beta)$ - (9CI) (CA INDEX NAME)

Absolute stereochemistry.

Double bond geometry as shown.

244304-84-5 CAPLUS RN

Estra-4,9-dien-3-one, 11-(4-acetylphenyl)-17-(3-hydroxypropyl)-17-nitro-, CN $(11\beta, 17\beta)$ - (9CI) (CA INDEX NAME)

RN 244304-85-6 CAPLUS

CN Estra-4,9-dien-3-one, $11-(4-acetylphenyl)-17-[(1E)-3-hydroxy-1-propenyl]-17-nitro-, (11<math>\beta$,17 β)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Double bond geometry as shown.

RN 244304-86-7 CAPLUS

CN Estra-4,9-dien-3-one, 17-(3-hydroxypropyl)-11-[4-(methylsulfinyl)phenyl]-17-nitro-, (11 β ,17 β)- (9CI) (CA INDEX NAME)

RN 244304-89-0 CAPLUS

CN Estra-4,9-dien-3-one, $11-[4-(dimethylamino)phenyl]-17-nitro-17-(1-propynyl)-, (11<math>\beta$,17 β)- (9CI) (CA INDEX NAME)

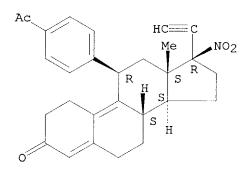
Absolute stereochemistry.

$$\begin{array}{c} \text{Me-C} = \text{C} \\ \text{Me} \\ \text{S} \\ \text{S} \\ \text{H} \\ \\ \text{O} \\ \end{array}$$

RN 244304-90-3 CAPLUS

CN 19-Norpregna-4,9-dien-20-yn-3-one, 11-(4-acetylphenyl)-17-nitro-, $(11\beta,17\alpha)$ - (9CI) (CA INDEX NAME)

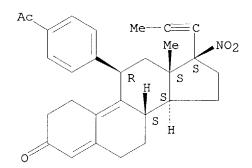
Absolute stereochemistry.



RN 244304-91-4 CAPLUS

CN Estra-4,9-dien-3-one, 11-(4-acetylphenyl)-17-nitro-17-(1-propynyl)-, $(11\beta,17\beta)-(9CI)$ (CA INDEX NAME)

Absolute stereochemistry.



RN 244305-03-1 CAPLUS

CN Estra-4, 9-dien-3-one, 17-(3-hydroxy-1-propenyl)-11-[4-(methylthio)phenyl]-17-nitro-, $(11\beta,17\beta)$ - (9CI) (CA INDEX NAME)

Absolute stereochemistry.
Double bond geometry unknown.

RN 244305-17-7 CAPLUS

CN Estra-4,9-dien-3-one, $11-(4-acetylphenyl)-17-[(1Z)-3-hydroxy-1-propenyl]-17-nitro-, (11<math>\beta$,17 β)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

Double bond geometry as shown.

IT 244305-38-2

RL: RCT (Reactant); RACT (Reactant or reagent) (preparation of 17β -nitro- 11β -arylsteroids and derivs. with progestational or antiprogestational activity)

RN 244305-38-2 CAPLUS

CN Estr-9-en-3-one, 5-hydroxy-17-nitro-11-[4-(1-piperidinyl)phenyl]-, cyclic 1,2-ethanediyl acetal, $(5\alpha,11\beta)$ - (9CI) (CA INDEX NAME)

```
IT
     244304-96-9P 244304-97-0P 244304-98-1P
     244304-99-2P 244305-00-8P 244305-01-9P
     244305-02-0P 244305-04-2P 244305-06-4P
     244305-07-5P 244305-09-7P 244305-10-0P
     244305-11-1P 244305-12-2P 244305-13-3P
     244305-14-4P 244305-15-5P 244305-16-6P
     244305-19-9P 244305-20-2P 244305-21-3P
     244305-22-4P 244305-23-5P 244305-24-6P
     244305-26-8P 244305-29-1P 244305-32-6P
     244305-33-7P 244305-34-8P 244305-36-0P
     RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
     (Reactant or reagent)
        (preparation of 17\beta-nitro-11\beta-arylsteroids and derivs. with
        progestational or antiprogestational activity)
     244304-96-9 CAPLUS
RN
     Estr-9-en-3-one, 17-bromo-11-[4-(dimethylamino)phenyl]-5-hydroxy-17-nitro-
CN
     , cyclic 1,2-ethanediyl acetal, (5\alpha,11\beta)- (9CI) (CA INDEX
    NAME)
```

Absolute stereochemistry.

RN 244304-97-0 CAPLUS CN Estr-9-en-3-one, $11-[4-(dimethylamino)phenyl]-5-hydroxy-17-nitro-, cyclic 1,2-ethanediyl acetal, <math>(5\alpha,11\beta,17\beta)-(9CI)$ (CA INDEX NAME)

10/611,785

Absolute stereochemistry.

RN 244304-98-1 CAPLUS

CN Estr-9-en-3-one, 11-[3-bromo-4-(dimethylamino)phenyl]-5-hydroxy-17-nitro-, cyclic 1,2-ethanediyl acetal, $(5\alpha,11\beta)$ - (9CI) (CA INDEX NAME)

Absolute stereochemistry.

RN 244304-99-2 CAPLUS

CN 19-Norpregn-9-ene-21-carboxylic acid, 11-[3-bromo-4-(dimethylamino)phenyl]- 3,3-[1,2-ethanediylbis(oxy)]-5-hydroxy-17-nitro-, methyl ester, $(5\alpha,11\beta,17\alpha)$ - (9CI) (CA INDEX NAME)

RN 244305-00-8 CAPLUS

CN Estr-9-en-3-one, 11-[3-bromo-4-(dimethylamino)phenyl]-5-hydroxy-17-(3-hydroxypropyl)-17-nitro-, cyclic 1,2-ethanediyl acetal, $(5\alpha,11\beta,17\beta)$ - (9CI) (CA INDEX NAME)

Absolute stereochemistry.

RN 244305-01-9 CAPLUS

CN Estr-9-en-3-one, 11-[4-(dimethylamino)phenyl]-5-hydroxy-17-(3-hydroxypropyl)-17-nitro-, cyclic 1,2-ethanediyl acetal, $(5\alpha,11\beta,17\beta)$ - (9CI) (CA INDEX NAME)

RN 244305-02-0 CAPLUS

CN 19-Norpregn-9-ene-21-carboxylic acid, 11-[4-(dimethylamino)phenyl]-3,3-[1,2-ethanediylbis(oxy)]-5-hydroxy-17-nitro-, methyl ester, $(5\alpha,11\beta,17\alpha)$ - (9CI) (CA INDEX NAME)

Absolute stereochemistry.

RN 244305-04-2 CAPLUS

CN 19-Norpregna-9,20-diene-21-carboxylic acid, 11-[3-bromo-4-(dimethylamino)phenyl]-3,3-[1,2-ethanediylbis(oxy)]-5-hydroxy-17-nitro-, methyl ester, $(5\alpha,11\beta,17\alpha,20E)$ - (9CI) (CA INDEX NAME)

Absolute stereochemistry.

Double bond geometry as shown.

RN 244305-06-4 CAPLUS

CN Estr-9-en-3-one, 11-[3-bromo-4-(dimethylamino)phenyl]-5-hydroxy-17-[(1E)-3-hydroxy-1-propenyl]-17-nitro-, cyclic 1,2-ethanediyl acetal, $(5\alpha,11\beta,17\beta)$ - (9CI) (CA INDEX NAME)

Absolute stereochemistry. Double bond geometry as shown.

RN 244305-07-5 CAPLUS

CN Estr-9-en-3-one, 11-[4-(dimethylamino)phenyl]-5-hydroxy-17-[(1E)-3-hydroxy-1-propenyl]-17-nitro-, cyclic 1,2-ethanediyl acetal, $(5\alpha,11\beta,17\beta)$ - (9CI) (CA INDEX NAME)

Absolute stereochemistry.

Double bond geometry as shown.

RN 244305-09-7 CAPLUS

CN Estr-9-en-3-one, 17-bromo-5-hydroxy-11-[4-(2-methyl-1,3-dioxolan-2-yl)phenyl]-17-nitro-, cyclic 1,2-ethanediyl acetal, $(5\alpha,11\beta)$ -(9CI) (CA INDEX NAME)

Absolute stereochemistry.

RN 244305-10-0 CAPLUS

CN Estr-9-en-3-one, 5-hydroxy-11-[4-(2-methyl-1,3-dioxolan-2-yl)phenyl]-17-nitro-, cyclic 1,2-ethanediyl acetal, $(5\alpha,11\beta)$ - (9CI) (CA INDEX NAME)

RN 244305-11-1 CAPLUS

CN 19-Norpregn-9-ene-21-carboxylic acid, 3,3-[1,2-ethanediylbis(oxy)]-5-hydroxy-11-[4-(2-methyl-1,3-dioxolan-2-yl)phenyl]-17-nitro-, methyl ester, $(5\alpha,11\beta,17\alpha)$ - (9CI) (CA INDEX NAME)

Absolute stereochemistry.

RN 244305-12-2 CAPLUS

CN 19-Norpregn-9-ene-21-carboxaldehyde, 3,3-[1,2-ethanediylbis(oxy)]-5-hydroxy-11-[4-(2-methyl-1,3-dioxolan-2-yl)phenyl]-17-nitro-, $(5\alpha,11\beta,17\alpha)$ - (9CI) (CA INDEX NAME)

RN 244305-13-3 CAPLUS

CN Estr-9-en-3-one, 5-hydroxy-17-(3-hydroxypropyl)-11-[4-(2-methyl-1,3-dioxolan-2-yl)phenyl]-17-nitro-, cyclic 1,2-ethanediyl acetal, $(5\alpha,11\beta,17\beta)$ - (9CI) (CA INDEX NAME)

Absolute stereochemistry.

RN 244305-14-4 CAPLUS

CN 19-Norpregna-9,20-diene-21-carboxylic acid, 3,3-[1,2-ethanediylbis(oxy)]-5-hydroxy-11-[4-(2-methyl-1,3-dioxolan-2-yl)phenyl]-17-nitro-, methyl ester, $(5\alpha,11\beta,17\alpha,20E)$ - (9CI) (CA INDEX NAME)

Absolute stereochemistry. Double bond geometry as shown.

RN 244305-15-5 CAPLUS

CN 19-Norpregna-9,20-diene-21-carboxylic acid, 3,3-[1,2-ethanediylbis(oxy)]-5-hydroxy-11-[4-(2-methyl-1,3-dioxolan-2-yl)phenyl]-17-nitro-, methyl ester, $(5\alpha,11\beta,17\alpha,20Z)$ - (9CI) (CA INDEX NAME)

Absolute stereochemistry. Double bond geometry as shown.

RN 244305-16-6 CAPLUS

CN Estr-9-en-3-one, 5-hydroxy-17-[(1E)-3-hydroxy-1-propenyl]-11-[4-(2-methyl-1,3-dioxolan-2-yl)phenyl]-17-nitro-, cyclic 1,2-ethanediyl acetal, $(5\alpha,11\beta,17\beta)$ - (9CI) (CA INDEX NAME)

Absolute stereochemistry.

Double bond geometry as shown.

RN 244305-19-9 CAPLUS

CN Estr-9-en-3-one, 17-bromo-5-hydroxy-11-[4-(methylsulfinyl)phenyl]-17-nitro-, cyclic 1,2-ethanediyl acetal, $(5\alpha,11\beta)$ - (9CI) (CA INDEX NAME)

Absolute stereochemistry.

RN 244305-20-2 CAPLUS

CN Estr-9-en-3-one, 5-hydroxy-11-[4-(methylsulfinyl)phenyl]-17-nitro-, cyclic 1,2-ethanediyl acetal, (5α ,11 β)- (9CI) (CA INDEX NAME)

RN 244305-21-3 CAPLUS

CN 19-Norpregn-9-ene-21-carboxylic acid, 3,3-[1,2-ethanediylbis(oxy)]-5-hydroxy-11-[4-(methylsulfinyl)phenyl]-17-nitro-, methyl ester, $(5\alpha,11\beta,17\alpha)$ - (9CI) (CA INDEX NAME)

Absolute stereochemistry.

RN 244305-22-4 CAPLUS

CN Estr-9-en-3-one, 5-hydroxy-17-(3-hydroxypropyl)-11-[4-(methylthio)phenyl]-17-nitro-, cyclic 1,2-ethanediyl acetal, $(5\alpha,11\beta,17\beta)$ - (9CI) (CA INDEX NAME)

RN 244305-23-5 CAPLUS

Absolute stereochemistry.

RN 244305-24-6 CAPLUS

CN 19,21-Dinorchol-9-ene-3,23-dione, 5-hydroxy-11-[4-(2-methyl-1,3-dioxolan-2-yl)phenyl]-17-nitro-, cyclic 3-(1,2-ethanediyl acetal), (5α,11β,17α)- (9CI) (CA INDEX NAME)

RN 244305-26-8 CAPLUS

CN 19,21-Dinorchol-9-ene-3,23-dione, 11-[3-bromo-4-(dimethylamino)phenyl]-5-hydroxy-17-nitro-, cyclic 3-(1,2-ethanediyl acetal), $(5\alpha,11\beta,17\alpha)$ - (9CI) (CA INDEX NAME)

Absolute stereochemistry.

RN 244305-29-1 CAPLUS

CN Estr-9-en-3-one, 11-[4-(dimethylamino)phenyl]-5-hydroxy-17-nitro-17-(1-propynyl)-, cyclic 1,2-ethanediyl acetal, $(5\alpha,11\beta,17\beta)$ - (9CI) (CA INDEX NAME)

RN 244305-32-6 CAPLUS

CN 19-Norpregn-9-en-20-yn-3-one, 5-hydroxy-11-[4-(2-methyl-1,3-dioxolan-2-yl)phenyl]-17-nitro-, cyclic 1,2-ethanediyl acetal, $(5\alpha,11\beta,17\alpha)$ - (9CI) (CA INDEX NAME)

Absolute stereochemistry.

RN 244305-33-7 CAPLUS

CN Estr-9-en-3-one, 5-hydroxy-11-[4-(2-methyl-1,3-dioxolan-2-yl)phenyl]-17-nitro-17-(1-propynyl)-, cyclic 1,2-ethanediyl acetal, $(5\alpha,11\beta,17\beta)$ - (9CI) (CA INDEX NAME)

RN 244305-34-8 CAPLUS

CN 19-Norpregn-9-ene-21-carboxaldehyde, $11-[4-(dimethylamino)phenyl]-3,3-[1,2-ethanediylbis(oxy)]-5-hydroxy-17-nitro-, <math>(5\alpha,11\beta,17\alpha)-(9CI)$ (CA INDEX NAME)

Absolute stereochemistry.

RN 244305-36-0 CAPLUS

CN 19,21-Dinorchol-9-ene-3,23-dione, 5-hydroxy-17-nitro-11-[4-(1-piperidinyl)phenyl]-, cyclic 3-(1,2-ethanediyl acetal), $(5\alpha,11\beta,17\alpha)$ - (9CI) (CA INDEX NAME)

IT 244305-05-3P 244305-30-4P

RL: SPN (Synthetic preparation); PREP (Preparation) (preparation of 17β -nitro- 11β -arylsteroids and derivs. with progestational or antiprogestational activity)

RN 244305-05-3 CAPLUS

CN 19-Norpregna-9,20-diene-21-carboxylic acid, $11-[3-bromo-4-(dimethylamino)phenyl]-3,3-[1,2-ethanediylbis(oxy)]-5-hydroxy-17-nitro-, methyl ester, <math>(5\alpha,11\beta,17\alpha,20Z)-(9CI)$ (CA INDEX NAME)

Absolute stereochemistry. Double bond geometry as shown.

RN 244305-30-4 CAPLUS

CN Estr-9-en-3-one, 5-hydroxy-11-[4-(methylamino)phenyl]-17-nitro-17-(1-propynyl)-, cyclic 1,2-ethanediyl acetal, $(5\alpha,11\beta,17\beta)$ - (9CI) (CA INDEX NAME)

47

REFERENCE COUNT:

THERE ARE 47 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT